



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

MEMORANDUM:

To: BeWanda Alexander

From: Clayton Myers, Entomologist

Date: December 13, 2011

Subject: PRODUCT PERFORMANCE DATA EVALUATION RECORD

DP barcode: 390848
Decision no.: 449846
Submission no: 896914
Action code: R310
Product Name: Ortho Bug B Gon/Home Defense Indoor & Outdoor Insect Killer
EPA Reg. No or File Symbol: 239-ETRT
Formulation Type: RTU-Liquid
Ingredients statement from the label with PC codes included: Bifenthrin, 0.05%, PC: 128825; Zeta-Cypermethrin, 0.0125%, PC: 129064
Application rate(s) of product and each active ingredient (lbs. or gallons/1000 square feet or per acre as appropriate; and g/m² or mg/cm² as appropriate): 0.20 lbs/acre (or equivalent)

I. Action Requested: Data was submitted to support residual claims on a new product.

II. Background: The registrant seeks to register a bifenthrin/zeta-cypermethrin combo product. The registrant is citing-all for efficacy claims and wishes to have all the claims present on the cited label. The registrant also proposes some additional speed of kill claims against fire ants, that are associated with the carrier in this new product. The registrant has submitted 2 efficacy studies for review to support these additional claims.

III. MRID Summaries: (Primary Reviews attached)

a. MRID 48496302

(1) Non-GLP

(2) Lab studies were conducted to support speed of kill/control claims against a number of pests of public health importance, applied at the label rate of 1.5 oz per gallon of water. Arenas consisting of metal pans (25.4 cm x 30.5 cm) with native soil on the bottom were used for exposure of pests to mimic outdoor conditions. Pests were introduced to treated (or untreated) arenas within minutes after treatment and observed for mortality, up to 24 hours after treatment. Observation times were at 15, 30, 45, and 60 minutes, and after 2, 4, 6, and 24 hours. Times to achieve knockdown and mortality were recorded. There were 4 replicates per treatment, with 5 arthropods per replicate (20 arthropods for each treatment). Mean knockdown time and mean mortality were assessed using ANOVA and means were separated using the non-parametric Student-Newman-Keuls test (p=0.05).

(3) Authors conclude that efficacy is supported for a number of pests, including Carpenter and Harvester Ants, and Cockroaches, and propose a number of comparative claims based upon speed of activity compared to a product with bifenthrin alone.

(4) The study is acceptable to support the following claims:

Knockdown: Carpenter Ants, 30 min; Harvester Ants, 30 min; Oriental and German cockroaches, 30 min; American cockroaches, 2 h.

Killing: Carpenter Ants, 1h; Harvester Ants, 45 min; Oriental cockroaches, 2h; German cockroaches, 24 h.

Comparative claims against other products are not permitted.

b. MRID 48496303

(1) Non-GLP

(2) Results from previously conducted studies under field conditions were provided to show that a liquid formulation of bifenthrin provides outdoor residual control of arthropods in lawns, on ornamental and edible plants, and around the home perimeter. Various studies were summarized.

(3) Authors conclude that efficacy is supported for fire ants (4 weeks-90 days), Fleas (12 weeks), carpenter ants (90 days), cockroaches (90 days), Brown recluse spiders (91 days), House flies (90 days), and American Dog Ticks (102 days). Label claims can be identical to those approved for 279-9535

(4) The study is partially acceptable for claims proposed in this study volume, with the exception of 3 month claims for ants on lawns and claims for scorpions. Because scorpions claims and a number of other claims have previously been approved based upon data reviewed previously by the Agency, and are approved on substantially similar products, these claims can remain on the submitted product label, as noted.

IV. RECOMMENDATIONS:

(1) Labeling:

(a) What pests and site/pest combinations may be added as follows to the label based on the submitted or cited data?

Comparative speed of kill claims are supported by the data, but such comparative efficacy claims has not typically been approved. This decision is deferred to the product manager (PM). Speed of kill claims (explicitly stated with a time claim) would be acceptable for Carpenter Ants, Harvester Ants, and Cockroaches.

Kill claims against listed pests are supported by the submitted data and database for similar products, however not all listed claims are acceptable. See comments in marketing claims section below.

(b) What pests and site/pest combinations must be removed from the label?

None

(c) List changes to the directions for use:

None

(d) List changes to the optional marketing claims:

1. General 3 month (90 claims) are not supported for all pests. The marketing claims on page 11 related to 3 month control only apply to the following pests: Ants, fleas, cockroaches, brown recluse spiders (black widow must be excluded), house flies, scorpions, and American dog ticks (Deer ticks and black legged ticks must be excluded from the long residual claim). The claim must be foot noted to list these specific pests. The same footnote must also be applied to all 3 month residual claims, also on page 11.

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 484963-02. Duskocil, J.P. Speed of Control of General Lawn and Home Invading Pests with a RTS/Concentrate Liquid Formulation Containing 0.3% Bifenthrin and 0.075% Zeta-Cypermethrin. February 15, 2011.

General Considerations for Efficacy of Invertebrate Control Agents (810.3000)

Product Name: Ortho Home Defense Indoor and Outdoor Insect Killer,

EPA File Symbol: 239-ETRT

Decision number: 449846

DP number: 390848

Prepared for
Registration Division (7505P)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summittec Corporation
Task Order No.: 2-25

Primary Reviewer:
Eric B. Lewis, M.S.

Signature: Eric B. Lewis
Date: SEP 30 2011

Secondary Reviewers:
Robert Ross, M.S.

Signature: Robert K. Ross
Date: SEP 30 2011

Robert Ross, M.S., Program Manager

Signature: Robert K. Ross
Date: SEP 30 2011

Quality Assurance:
Jennifer Goldberg, B.S.

Signature: Jennifer Goldberg
Date: SEP 30 2011

**RECOMMENDED
CLASSIFICATION:**

Unacceptable

Disclaimer

This review may have been altered subsequent to the contractors' signatures above.

Summittec Corporation for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[Primary Reviewer's Name]

STUDY TYPE:	PRODUCT PERFORMANCE (810.3000)
MRID:	484963-02. Speed of Control of General Lawn and Home Invading Pests with a RTS/Concentrate Liquid Formulation Containing 0.3% Bifenthrin and 0.075% Zeta-Cypermethrin. Daskocil, J.P. 2011.
DP BARCODE:	390848
DECISION NO:	449846
SUBMISSION NO:	896914
SPONSOR:	The Scotts Company, P.O. Box 190, Marysville, OH 43040
TESTING FACILITY:	The Scotts Company, LLC, 14111 Scottslawn Road, Marysville, OH 43041
STUDY DIRECTOR:	R.K. Soufi, The Scotts Company, LLC
SUBMITTER:	J. Rothwell, Analyst, Federal Regulations, The Scotts Company, LLC
STUDY COMPLETED:	15/02/2011
CONFIDENTIALITY CLAIMS:	None.
GOOD LABORATORY PRACTICE:	A signed and dated GLP statement was included. The study was not conducted in accordance with 40 CFR Part 160.
TEST MATERIAL:	PRODUCT NAME: Ortho Home Defense Indoor and Outdoor Insect Killer ₃ EPA FILE SYMBOL: 239-ETRT ACTIVE INGREDIENT NAME: Bifenthrin; zeta-Cypermethrin CHEMICAL NAME: (2-Methyl{1,1'-biphenyl}-3-yl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate,{1.alpha.,3.alpha.(Z)}-(+.-)-; Cyclopropanecarboxylic acid, 3-(2,2-dichloroethenyl)-2,2-dimethyl-, cyano(3-phenoxyphenyl)methyl ester

A.I. %: 0.0500; 0.0125

PC CODE: 128825; 129064

CAS NO.: 82657-04-3; 52315-07-8

FORMULATION TYPE: Liquid

PRODUCT APPLICATION RATE: Indoor surfaces: set spray nozzle to indoor setting, hold sprayer 12 inches from surface, apply in a 4-inch wide band, spray until slightly wet without soaking. Outdoor surfaces: set spray nozzle to outdoor setting, hold sprayer 12 inches from surface, apply in a 12-inch wide band, spray until slightly wet without soaking.

ACTIVE INGREDIENT APPLICATION RATE: Not applicable.

**PROPOSED LABEL
MARKETING CLAIMS:**

Visible activity against listed bugs within minutes.
Starts killing within minutes.
Starts acting within minutes.

EPA REQUESTS:

[EPA WILL ADD DIRECTIVES HERE]

STUDY REVIEW

Study Number/Title: (if more than one study is provided in the MRID)

Purpose: The study was conducted to support speed of efficacy claims against general lawn and home invading pests.

MATERIALS AND METHODS

Test Location: Marysville, OH

Test Material: The test materials were a new RTS/concentrate liquid formulation containing 0.3% bifenthrin plus 0.075% zeta-cypermethrin as active ingredients, and a previous RTS/concentrate liquid formulation containing 0.3% bifenthrin only. The appropriate test material was applied to the test arena at a rate of 0.295 mL diluted in 24.98 mL of water (equivalent to a rate of 1.5 oz/gal water). The product label for Ortho Home Defense Indoor and Outdoor Insect Killer₃ does not specify a concentration of product to be applied.

Test Species Name, Life Stage, Sex and Age: Florida carpenter ant (*Camponotus floridanus*), adults, sex not provided; western harvester ant (*Pogonomyrmex occidentalis*), adults, sex not provided; convergent lady beetle (*Hippodamia convergens*), adults, sex not provided; brown dog tick (*Rhipicephalus sanguineus*), adults, sex not provided; cricket (*Acheta domesticus*), adults, sex not provided; oriental cockroach (*Blatta orientalis*) adults, sex not provided; German cockroach (*Blattella germanica*), adults, sex not provided; American cockroach (*Periplaneta americana*), adults, sex not provided.

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: The test was conducted using a completely randomized design. The test arenas were 25.4 x 30.5 cm aluminum pans with 366.96 g of native soil distributed evenly across the bottom. Each arena was treated once with 0.295 mL of the appropriate test material diluted with 24.98 mL of water (equivalent to a rate of 1.5 oz/gal). The method of application was not specified. Untreated test arenas served as the control. Within minutes after treatment, five adults of the same test species were introduced into each arena, which was then covered with plexiglass. The insects were observed until 100% mortality occurred, or for up to 24 hours. Observation times were at 15, 30, 45, and 60 minutes, and after two, four, six, and 24 hours. The times to achieve knockdown and mortality were recorded.

List the treatments including untreated control: RTS/concentrate liquid formulation of 0.3% bifenthrin plus 0.075% zeta-cypermethrin, 0.295 mL diluted with 24.98 mL of water/arena; RTS/concentrate liquid formulation of 0.3% bifenthrin, 0.295 mL diluted with 24.98 mL of water/arena; untreated control.

Number of replicates per treatment: 4

Number of individuals per replicate: 5

Length of exposure to treatment: Up to 24 hours.

Experimental conditions: Not provided.

Data or endpoints that were to be collected/recorded: Knockdown time, mortality

Data Analysis: Mean knockdown time and mean mortality were analyzed using ANOVA. Mean comparisons were performed using the Student-Newman-Keuls test ($p=0.05$).

RESULTS

Were the raw data included? No.

Protocol amendments and deviations: Not reported.

Describe and report experimental results in the untreated controls and treatments.

The time to achieve knockdown with the 0.3% bifenthrin + 0.075% zeta-cypermethrin test material is given in Table 1. Depending on the species, knockdown occurred within 15 to 45 minutes. All species except the brown dog tick were 80% knocked down within 60 minutes.

Table 1: Time to achieve knockdown with 0.3% Bifenthrin + 0.075% Zeta-Cypermethrin liquid for all species tested. Values are represented as percentage knocked down at the observation time. Values followed by a different letter are statistically different from their control counterpart, Student-Newman-Keuls at P=0.05. Controls are directly under the treated values for each species. Missing observation times represented by – in the table.

Treatment	Minutes After Introduction				Hours After Introduction			
	15	30	45	60	2	4	6	24
FL Carpenter Ant	70 a	90 a	100 a	100 a	100 a	100 a	100 a	100 a
Control	0 b	0 b	0 b	0 b	0 b	0 b	0 b	0 b
W. Harvester Ant	26 a	100 a	100 a	100 a	100 a	100 a	100 a	100 a
Control	0 a	0 b	0 b	0 b	0 b	0 b	0 b	0 b
Brown Dog Tick	0 a	10 a	-	20 a	50 a	60 a	76 a	86 a
Control	0 a	0 a	-	0 a	0 b	0 b	0 b	0 b
Lady Beetle	100 a	100 a	-	100 a	100 a	100 a	100 a	100 a
Control	0 b	0 b	-	0 b	0 b	0 b	0 b	6 b
Cricket	50 a	90 a	100 a	100 a	100 a	100 a	100 a	100 a
Control	0 b	0 b	0 b	0 b	0 b	0 b	0 b	0 b
Oriental Roach	6 a	90 a	100 a	100 a	100 a	100 a	100 a	100 a
Control	0 a	0 b	0 b	0 b	6 b	6 b	10 b	16 b
German Roach	16 a	90 a	90 a	100 a	100 a	100 a	100 a	100 a
Control	0 a	0 b	0 b	0 b	0 b	0 b	0 b	0 b
American Roach	0 a	0 a	20 a	80 a	100 a	100 a	100 a	100 a
Control	0 a	0 a	0 a	0 b	0 b	0 b	0 b	0 b

The time to achieve mortality with the 0.3% bifenthrin + 0.075% zeta-cypermethrin test material is given in Table 2. All the treated groups experienced some mortality within 24 hours of treatment.

Table 2: Time to achieve mortality with 0.3% Bifenthrin + 0.075% Zeta-Cypermethrin liquid for all species tested. Values are represented as percentage mortality at the observation time. Values followed by a different letter are statistically different from their control counterpart, Student-Newman-Keuls at P=0.05. Controls are directly under the treated values for each species. Missing observation times represented by – in the table.

Treatment	Minutes After Introduction				Hours After Introduction			
	15	30	45	60	2	4	6	24
FL Carpenter Ant	0 a	0 a	80 a	100 a	100 a	100 a	100 a	100 a
Control	0 a	0 a	0 b	0 b	0 b	0 b	0 b	0 b
W. Harvester Ant	0 a	0 a	90 a	100 a	100 a	100 a	100 a	100 a
Control	0 a	0 a	0 b	0 b	0 b	0 b	0 b	0 b
Brown Dog Tick	0 a	0 a	-	0 a	40 a	56 a	56 a	66 a
Control	0 a	0 a	-	0 a	0 b	0 b	0 b	0 b
Lady Beetle	26 a	26 a	-	30 a	96 a	96 a	100 a	100 a
Control	0 b	0 b	-	0 b	0 b	0 b	0 b	6 b
Cricket	0 a	0 a	0 a	0 a	6 a	6 a	10 a	36 a
Control	0 a	0 a	0 a	0 a	0 a	0 a	0 a	0 b
Oriental Roach	0 a	10 a	40 a	70 a	96 a	100 a	100 a	100 a
Control	0 a	0 a	0 b	0 b	6 b	6 b	10 b	16 b
German Roach	0 a	0 a	0 a	0 a	10 a	40 a	80 a	96 a
Control	0 a	0 a	0 a	0 a	0 a	0 b	0 b	0 b
American Roach	0 a	0 a	0 a	0 a	0 a	0 a	0 a	6 a
Control	0 a	0 a	0 a	0 a	0 a	0 a	0 a	0 a

The time to achieve knockdown with the 0.3% bifenthrin test material is given in Table 3. Depending on the species, knockdown occurred within 15 minutes to two hours. After one hour, knockdown was seen for each ant species, lady beetles, crickets, oriental cockroaches, and German cockroaches. After two hours, knockdown was seen for brown dog ticks and American cockroaches.

Table 3: Time to achieve knockdown with 0.3% Bifenthrin liquid for all species tested. Values are represented as percentage knocked down at the observation time. Values followed by a different letter are statistically different from their control counterpart, Student-Newman-Keuls at P=0.05. Controls are directly under the treated values for each species. Missing observation times represented by – in the table.

Treatment	Minutes After Introduction				Hours After Introduction			
	15	30	45	60	2	4	6	24
FL Carpenter Ant	26 a	90 a	100 a	100 a	100 a	100 a	100 a	100 a
Control	0 b	0 b	0 b	0 b	0 b	0 b	0 b	0 b
W. Harvester Ant	0 a	60 a	96 a	100 a	100 a	100 a	100 a	100 a
Control	0 a	0 b	0 b	0 b	0 b	0 b	0 b	0 b
Brown Dog Tick	0 a	0 a	-	0 a	26 a	66 a	66 a	80 a
Control	0 a	0 a	-	0 a	0 b	0 b	0 b	0 b
Lady Beetle	96 a	100 a	-	90 a	90 a	100 a	100 a	100 a
Control	0 b	0 b	-	0 b	0 b	0 b	0 b	6 b
Cricket	0 a	0 a	30 a	46 a	90 a	100 a	100 a	100 a
Control	0 a	0 a	0 b	0 b	0 b	0 b	0 b	0 b
Oriental Roach	0 a	16 a	16 a	16 a	80 a	100 a	100 a	100 a
Control	0 a	0 a	0 a	0 a	6 b	6 b	10 b	16 b
German Roach	6 a	6 a	40 a	70 a	96 a	96 a	96 a	100 a
Control	0 a	0 a	0 b	0 b	0 b	0 b	0 b	0 b
American Roach	0 a	0 a	0 a	0 a	30 a	86 a	86 a	76 a
Control	0 a	0 a	0 a	0 a	0 a	0 b	0 b	0 b

The time to achieve mortality with the 0.3% bifenthrin test material is given in Table 4. Depending on the species, mortality occurred within 30 minutes to 24 hours. By 24 hours, some level of mortality was seen for all species except American cockroaches.

Table 4: Time to achieve mortality with 0.3% Bifenthrin liquid for all species tested. Values are represented as percent mortality at the observation time. Values followed by a different letter are statistically different from their control counterpart, Student-Newman-Keuls at P=0.05. Controls are directly under the treated values for each species. Missing observation times represented by – in the table.

Treatment	Minutes After Introduction				Hours After Introduction			
	15	30	45	60	2	4	6	24
FL Carpenter Ant	0 a	0 a	70 a	100 a	100 a	100 a	100 a	100 a
Control	0 a	0 a	0 b	0 b	0 b	0 b	0 b	0 b
W. Harvester Ant	0 a	0 a	0 a	50 a	46 a	100 a	100 a	100 a
Control	0 a	0 a	0 a	0 b	0 b	0 b	0 b	0 b
Brown Dog Tick	0 a	0 a	-	0 a	6 a	56 a	50 a	70 a
Control	0 a	0 a	-	0 a	0 a	0 b	0 b	0 b
Lady Beetle	0 a	36 a	-	40 a	36 a	40 a	60 a	80 a
Control	0 a	0 a	-	0 a	0 b	0 b	0 b	6 b
Cricket	0 a	0 a	0 a	0 a	0 a	6 a	6 a	56 a
Control	0 a	0 a	0 a	0 a	0 a	0 a	0 a	0 b
Oriental Roach	0 a	0 a	0 a	0 a	0 a	6 a	6 a	100 a
Control	0 a	0 a	0 a	0 a	6 a	6 a	10 a	16 b
German Roach	0 a	0 a	0 a	0 a	0 a	20 a	56 a	96 a
Control	0 a	0 a	0 a	0 a	0 a	0 a	0 b	0 b
American Roach	0 a	0 a	0 a	0 a	0 a	0 a	0 a	0 a
Control	0 a	0 a	0 a	0 a	0 a	0 a	0 a	0 a

The time for each of the test materials to achieve acceptable mortality to lady beetles, western harvester ant, oriental cockroaches, and German cockroaches is given in Table 5. The new formulation containing bifenthrin + zeta-cypermethrin achieved acceptable mortality of these pests at least four times faster than the older formulation containing bifenthrin alone.

Table 5. A comparison of the time needed to achieve acceptable mortality by product for lady beetle, western harvester ant, and Oriental and German cockroaches.

Treatment	Insect Treated			
	Lady Beetle	Western Harvester Ant	Oriental Cockroach	German Cockroach
Bifenthrin + Zeta-cypermethrin	2 hrs	45 min.	2 hrs	6 hrs
Bifenthrin	24 hrs	4 hrs	24 hrs	24 hrs
Control	n/a	n/a	n/a	n/a

Study Author's Conclusions

The study author concluded that the new formulation test material containing bifenthrin + zeta-cypermethrin achieved knockdown within 60 minutes, and some degree of mortality with 24 hours, for all the insect species tested. The new formulation also produced an acceptable level of mortality four times faster than the older formulation for lady beetles, western harvester ants, oriental cockroaches, and German cockroaches.

Reviewer's Conclusions

The new formulation test material used in the tests contains 0.3% bifenthrin + 0.075% zeta-cypermethrin, and the older formulation contains 0.3% bifenthrin alone. Ortho Home Defense

Indoor and Outdoor Insect Killer₃ contains 0.0500% bifenthrin + 0.0125% zeta-cypermethrin. Since the concentration of bifenthrin in the test materials used in the test (0.3%) exceeds the concentration in Ortho Home Defense Indoor and Outdoor Insect Killer₃ (0.05%) this test is not valid for Ortho Home Defense Indoor and Outdoor Insect Killer₃.

Reviewer Recommendations

The study is unacceptable. The reviewer notes that the registrant submitted this study under OPPTS guideline 810.3000. Guideline 810.3500 (Premises Treatments) is more appropriate.

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

**MRID 484963-03. Residual Control of Outdoor Crawling Arthropods with Bifenthrin
Applied at 0.2 Pounds per Acre. April 19, 2011.**

**General Considerations for Efficacy of Invertebrate Control Agents (810.3000)
Soil Treatments for Imported Fire Ants (810.3100)
Premises Treatments (810.3500)**

**Product Name: Ortho Home Defense Indoor and Outdoor Insect Killer₃
EPA File Symbol: 239-ETRT
Decision number: 449846
DP number: 390848**

Prepared for
Registration Division (7505P)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summitec Corporation
Task Order No.: 2-25

Primary Reviewer:
Eric B. Lewis, M.S.

Signature: *Eric B. Lewis*
Date: SEP 30 2011

Secondary Reviewers:
Robert Ross, M.S.

Signature: *Robert H. Ross*
Date: SEP 30 2011

Robert Ross, M.S., Program Manager

Signature: *Robert H. Ross*
Date: SEP 30 2011

Quality Assurance:
Jennifer Goldberg, B.S.

Signature: *Jennifer Goldberg*
Date: SEP 30 2011

**RECOMMENDED
CLASSIFICATION:**

Unacceptable

Disclaimer

This review may have been altered subsequent to the contractors' signatures above.

Summitec Corporation for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[Primary Reviewer's Name]

STUDY TYPE:	PRODUCT PERFORMANCE (810.3000, 810.3100, 810.3500)
MRID:	484963-03. Residual Control of Outdoor Crawling Arthropods with Bifenthrin Applied at 0.2 Pounds per Acre. Daskocil, J.P. 2011.
DP BARCODE:	390848
DECISION NO:	449846
SUBMISSION NO:	896914
SPONSOR:	The Scotts Company, 14111 Scottslawn Road, Marysville, OH 43041
TESTING FACILITY:	"Various"
STUDY DIRECTOR:	R.K. Soufi, The Scotts Company, LLC
SUBMITTER:	J. Rothwell, Analyst, Federal Regulations, The Scotts Company, LLC
STUDY COMPLETED:	19/04/2011 (Report date)
CONFIDENTIALITY CLAIMS:	None.
GOOD LABORATORY PRACTICE:	A signed and dated GLP statement was included. The study was not conducted in accordance with 40 CFR Part 160.
TEST MATERIAL:	PRODUCT NAME: Ortho Home Defense Indoor and Outdoor Insect Killer ₃ EPA FILE SYMBOL: 239-ETRT ACTIVE INGREDIENT NAME: Bifenthrin; zeta-Cypermethrin CHEMICAL NAME: (2-Methyl{1,1'-hiphenyl}-3-yl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate, {1.alpha.,3.alpha.(Z)}-(.+-.)-; Cyclopropanecarboxylic acid, 3-(2,2-dichloroethenyl)-2,2-dimethyl-, cyano(3-

phenoxyphenyl)methyl ester

A.I. %: 0.0500; 0.0125

PC CODE: 128825; 129064

CAS NO.: 82657-04-3; 52315-07-8

FORMULATION TYPE: Liquid

PRODUCT APPLICATION RATE: Indoor surfaces: set spray nozzle to indoor setting, hold sprayer 12 inches from surface, apply in a 4-inch wide band, spray until slightly wet without soaking. Outdoor surfaces: set spray nozzle to outdoor setting, hold sprayer 12 inches from surface, apply in a 12-inch wide band, spray until slightly wet without soaking.

ACTIVE INGREDIENT APPLICATION RATE: Not applicable

**PROPOSED LABEL
MARKETING CLAIMS:**

12-Month Claims:

Up to 12 month control/protection*

Kills/controls/protects [for] up to 12 months*

Kills listed bugs inside all year*

Kills listed home invading bugs all year*

Kills listed indoor bugs all year*

Creates a barrier that will kill listed bugs you have and prevent new bugs for up to 12 months*

Creates a perimeter/border/residual treatment that will kill listed bugs you have and prevent new bugs for up to 12 months*

*Qualifier option 1: [Applies to] [for] ants, roaches [palmetto bug] [water bug], & spiders indoors on non porous surfaces

*Qualifier option 2: [Applies to] [for] American cockroach, [palmetto bug] [water bug], carpenter ant, pharaoh ant, striped tail scorpion, black widow spider, brown recluse spider indoors on treated non porous surfaces within minutes of exposure

*Qualifier option 3: [Applies to] [for] American cockroach, [palmetto bug] [water bug], German cockroach, carpenter ant, pharaoh ant, striped tail scorpion, black widow spider, brown recluse spider indoors on treated non porous surfaces after 2 hour continuous exposure

*Qualifier option 4: [Applies to] [for] American cockroach, [palmetto bug] [water bug], German cockroach, carpenter ant, pharaoh ant, striped tail scorpion, black widow spider, brown recluse spider, centipedes indoors on treated non porous surfaces after 24 hour continuous exposure

6-Month Claims:

Up to 6 month control/protection outdoors*

Kills/controls/protects [for] up to 6 months outdoors*

Kills listed insects outdoors for 6 months*

Kills listed insects [indoors] [and] [outdoors] for 6 months*

*Applies to [for] spiders (excluding black widow, brown recluse, hobo)

5-Month Claims:

Keeps bugs away for up to 5 months indoors on listed insects*

Kills listed bugs inside, keeps listed bugs out for up to 5 months*

[One application provides] up to 5 month control indoors of listed insects*

Provides up to 5 months protection indoors

[One application] kills listed bugs up to 5 months indoors*

[One application] kills listed ants, roaches [and spiders] for up to 5 months indoors*

Keeps listed ants, roaches [and spiders] away for up to 5 months indoors*

*Up to 5 month control indoors on: ants (including western harvester), carpet beetles, crickets, firebrats, moths, silverfish and spiders on treated non porous surfaces after 5 minutes continuous exposure to residues. 5 month control indoors on German cockroaches after 30 minutes continuous exposure to residues.

4-Month Claims:

Up to 4 month control/protection outdoors*

Kills/controls/protects [for] up to 4 months outdoors*

Kills listed bugs outdoors for 4 months*

Kills listed bugs [indoors] [and] [outdoors] for 4 months*

*Applies to [for] spiders (excluding black widow, brown recluse, hobo)

3-Month Claims:

Up to 3 month control [protection] outdoors*

Kills/controls/protects [for] up to 3 months outdoors*

Kills listed bugs outdoors for 3 months*

Kills listed bugs [indoors] [and] [outdoors] for 3 months*

*Applies to [for] spiders (excluding black widow, brown recluse, hobo); argentine, carpenter fire ants; harvester ants, roaches/palmetto bugs/water bug; striped scorpions, fleas, crickets, grasshoppers, pillbugs, ticks

EPA REQUESTS:

STUDY REVIEW

Study Number/Title: (if more than one study is provided in the MRID)

Purpose: Results from previously-conducted studies were provided to show that a liquid formulation of bifenthrin provides outdoor residual control of arthropods around the home perimeter.

MATERIALS AND METHODS

Test Location: Not provided.

Test Material: The test materials were liquid formulations of bifenthrin (most of them registered products) applied at concentrations up to 0.2 lb a.i./acre. The product label for Ortho Home Defense Indoor and Outdoor Insect Killer₃ does not give a specific application rate, but instructs the user to hold the sprayer 12 inches from the surface being sprayed, and to apply a four-inch wide (indoors) or 12-inch wide (outdoors) band of product until the surface is slightly wet.

Test Species Name, Life Stage, Sex and Age: Argentine ant, carpenter ant, red imported fire ant, American cockroach, German cockroach, oriental cockroach, black house spider, daddy-long-legs, longjaw spider, brown recluse, crickets/grasshoppers, flea, house flies, striped tail scorpion, pillbug, American dog tick; scientific name, life stage, and sex not provided.

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: The tests were conducted on soil, wood, repellent wood, cement, ceramic tile, stainless steel, vinyl, mulch, soil, porous, non-porous, and other substrates. No additional details were provided in MRID 484963-03.

List the treatments including untreated control:

Bifenthrin, applied at 0.08-0.2 lb/A. No additional details were provided.

Number of replicates per treatment: Not provided

Number of individuals per replicate: Not provided

Length of exposure to treatment: 90-315 days.

Experimental conditions: Not provided.

Data or endpoints that were to be collected/recorded: Percent control.

Data Analysis: Not provided.

RESULTS

Were the raw data included? No.

Protocol amendments and deviations: Not reported.

Describe and report experimental results in the untreated controls and treatments.

Results of the tests for home perimeter are summarized in Table 1.

TABLE 1. Residual insect control for the home perimeter.

Arthropod		Test Reference	EPA Reg.	Substrate	Bifenthrin Rate	Length of Residual	Percent Control
Ants	Argentine	PDM 085-08	239-2687	soil	0.2 #/A	126 Days	100%
	Carpenter	04DLR050 PDM074-05	279-3240	Pine Board	0.2 #/A	90 Days	99%
	Red Imported Fire (Foragers)	MRID: 46180801, 46809101	239-2687	Plain Wood	0.2 #/A	90 Days	100.00%
				Repellent Wood	0.2 #/A	90 Days	100%
				Cement	0.2 #/A	90 Days	95%
Cockroaches	American	MRID 46371601	279-3206	Ceramic Tile	0.2 #/A	90 Days	100%
	German	MRID 46371601		Ceramic Tile		90 Days	100%
				Stainless Steel		90 Days	100%
		MRID 448919-03	279-3206	Vinyl	0.08-0.2 #/A	210 Days	98-100%
	Oriental	MRID 47086001, 46371601	279-3206	Ceramic Tile	0.2 #/A	90 Days	95%
Spiders	Black House	PDM060-040	279-3240-239	Variable-Homes	0.17 #/A	315 Days	90%
	Daddy-Long-legs	PDM060-040					
	Longjaw	PDM060-040					
	Brown Recluse				0.2 #/A	91 Days	100%
Crickets/Grasshoppers		MRID 47086001	279-3240-239	Mulch	0.2 #/A	92 Days	94%
Fleas		MRID 47086001	279-3206	Porous	0.2 #/A	90 Days	100%
House Flies		MRID 47086001	279-3240	Ceramic	0.2 #/A	90 Days	93%
		MRID 47086001		Non-Porous (Pine)	0.2 #/A	90-120 Days	97% & 83%
Scorpions-Striped Tail		MRID 46508101	279-3168	Soil	0.2 #/A	90 Days	80%
Pillbugs			279-3240		0.2 #/A	90 Days	89%
American Dog Tick			279-3240		0.2 #/A	102 Days	97%

** #/A - pounds active ingredient per acre

Study Author's Conclusions

The study author concluded that since bifenthrin at the same or lesser rates than those recommended on the Ortho Home Defense Indoor and Outdoor Insect Killer₃ label was

efficacious, the same performance can be expected with Ortho Home Defense Indoor and Outdoor Insect Killer₃.

Reviewer's Conclusions

Most of the test materials used in the home perimeter tests described in MRID 484963-03 were applied at a rate of 0.2 lb bifenthrin/A, which the registrant states is included in the instructed use rate for liquid formulated products which contain a combination of bifenthrin and zeta-cypermethrin. From the information provided in MRID 484963-03 and given on the product label for Ortho Home Defense Indoor and Outdoor Insect Killer₃, the reviewer could not determine if the amount of bifenthrin applied in the tests was less than or equal to the amount that would result from application of Ortho Home Defense Indoor and Outdoor Insect Killer₃ following the label instructions.

Reviewer Recommendations

The study is unacceptable. The registrant should provide information to confirm that the application rate of 0.2 lb a.i./A used in the tests is less than or equivalent to that which would be achieved by using Ortho Home Defense Indoor and Outdoor Insect Killer₃ following the label instructions.